



Maine Department of Environmental Protection

Bureau of Land & Water Quality

O&M Newsletter

June 2007

A monthly newsletter for wastewater discharge licensees, treatment facility operators, and associated persons

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Annual License Fee Update

Some of you may be wondering what happened to your annual wastewater discharge fee. Not to worry, the bills are late for those of you who normally

receive them in the first and second quarter, but they will get there soon. We are running late due to unusual circumstances related to a database conversion, which I hope will never be repeated.

First a quick reminder of how the system works. All municipal/industrial licenses are categorized into various types, which determine the base fee and what additional charges will be applied. For some licenses, the additional fees are billed based on flow, but for many the additional fees are based on annual average pollutant loadings from the prior year. For this year's bill that means the data for calendar year 2006 are used. To get that data, the billing database goes to the federal Permit Compliance System (PCS) national database (where DMR data is stored) and extracts the relevant data to calculate the annual averages. If there are errors or omissions in PCS, they will be reflected in the billing data, or they will cause the billing program to generate error messages that must be addressed. In a "normal" year, some troubleshooting of data is required to generate the reports.

In the middle of 2006, the DEP began implementation to two new programs – EFIS and eDMR. EFIS (Environmental Facility Information System) is an internal DEP database that will handle, among many other types of information, wastewater compliance data. Rather

than entering DMR data into PCS and then getting it back from EPA to work with, we now enter data into EFIS and send the information to EPA. eDMR is a system for electronic filing of DMRs that will eliminate paper mailings of standard compliance data for those facilities that are internet-capable. The communication between EFIS and PCS has been less than perfect, which has resulted in a considerable effort to ensure that all the data is complete and accurate.

Because the billing system extracts information from PCS, rather than EFIS, the data problem has to be addressed before we can generate the bills. I am nearing the end of this data quest, so the billing system should be completely correct for the entire year's bills by the middle of June.

Phil Garwood

Mercury Data

We are approaching the end of the tenth year of collecting Mercury data from wastewater treatment facilities. In order to conduct a thorough review of the program, we are looking at the data that have been collected at the facilities since the fall of 1998. Every facility that is required to submit mercury sampling data will receive a summary of the mercury data that have been reported to us.

Please take a few minutes and review this report against your own records. If the report we send you is complete and correct, you do not need to do anything else. If, however, we either missed a test you reported or we gave your facility

credit for another facility's test report, we ask that you fix the error and send the report back to us so that we can correct our records.

Thanks you, in advance for your help. You should see the reports and its accompanying cover letter soon. If there are errors on the report, we ask that you return the report, with the errors noted, by July 15, 2007.

Dick Darling

For Practice

1. Primary Clarifiers do not remove:
 - a. dissolved solids
 - b. inorganic solids
 - c. settleable solids
 - d. floating solids
2. You get a sudden increase of organic material to your treatment plant. What steps should you take to make sure that adequate treatment is maintained?
 - a. Chlorinate the return sludge and the influent
 - b. Decrease the aeration and waste more sludge.
 - c. Increase the return rate and add supernatant.
 - d. Increase the aeration and increase the return rate.
3. In a parallel circuit, if one unit is burned out or disconnected, the other units will,
 - a. become overloaded
 - b. cease to function
 - c. continue to function
 - d. continue to function until the failed unit is replaced.

4. One type of positive displacement pump is:
 - a. a peristaltic pump.
 - b. a radial flow pump.
 - c. an air lift pump
 - d. an axial flow pump

Maine Department of Environmental Protection Representative Sampling for Reporting Average Discharges June 2007

Often, permits require relatively infrequent pollutant sampling to meet average or total effluent limitations. For example, 2 – 4 days of sampling data may make up a monthly average. The overriding objective for any sampling program is to obtain samples that are as representative as possible of the entire monitoring period. An important part of accomplishing this goal is the selection of days that are actually sampled to best and most fairly represent the effluent from the entire monitoring period. The best way to ensure representative sampling is to select a schedule and pre-planned sampling program that will encompass a variety of conditions that typically make up the entire monitoring period. While there is no magic formula, here are some considerations for a representative sampling program to best define the average discharges. These same principles can be adapted for weekly, monthly, quarterly and annual averages.

1. Use the same day(s) of the week or month each time. Pick times that reflect normal commercial activity or industrial production.

Space the sampling events evenly throughout the period. If other conditions make the regularly scheduled day impractical, use another typical day as soon after the planned day as possible.

2. The effluent is what it is. Do not exclude a day from sampling just because the effluent quality is different from “normal” for better or worse. Representative sampling must include all effluent conditions when the other factors are met.
3. Track industrial production rates. Facilities having production-based effluent limits need to exclude from average calculations, any data points that are obtained when actual production rates are less than 50% of the rate used to calculate the effluent limits. This situation is covered in Special Condition C(2) of most permits. Samples still need to be taken and reported as daily discharge values.
4. In preparing your averages, be sure to exclude days when there is no or very little discharge. This may occur with lagoon systems that are periodically impounded, spray irrigation systems or intermittent commercial facilities. A non-discharge day is not counted in the number of days for the averaging period.

5. As a final consideration, remember that one of the best ways to ensure a good representative sample is to do as much sampling as possible. Permit requirements are minimums, not restrictions on how much sampling can be done. However, staying on a regular schedule is essential no matter what. If more than the minimum number of samples is to be done, they must be evenly spaced throughout the period. Extra “catch-up” sampling near the end of the period to help average out a previous high result is not a representative program.

It is best to review routine sampling programs in advance with your compliance inspector. If any special situations arise, or you have reason to believe that certain samples should be excluded from an average, contact the compliance inspector to get their concurrence. In any event a written explanation should be included with the discharge monitoring report.

As always, if there are specific questions about these situations, it is best to contact the Department.

Dennis Merrill

Approved Training

June 13, 2007 in Topsham, ME - pH & Total Suspended Solids (TSS):
Analytical Procedures - sponsored by WPTEC – Approved for 6 hours

Note: JETCC stands for Joint Environmental Training Coordinating Committee – PO Box 487 – Scarborough, ME 04070-0487 – Tel (207) 253-8020

Efficiency Maine is a program of the Maine Public Utilities Commission - 18 State House Station, Augusta, ME 04333-0018
Tel: 207-287-8350

MRWA stands for Maine Rural Water Association - 14 Maine Street, Box 36 - Brunswick, ME 04011 – Tel (207) 729-6569

NEIWPCC stands for New England Interstate Water Pollution Control Commission – 116 John St. – Lowell, MA 01852-1124 – Tel (978) 323-7929

WPETC stands for Wright Pierce Environmental Training Center, 99 Main Street, Topsham, ME 04086 – Tel. 207-725-8721

Spring 2007 Exams

The spring exam was given in the usual locations on Wednesday, May 16, 2007. If you took the exam, you will receive the results as soon as we get them. It usually takes 4 to 6 weeks after the exam date for us to get the results. Please don't call in a week and expect us to have the results.

If you missed the deadline for the Spring exam, the next exam will be given on November, 14, 2007

Answers to *For Practice*:

1. a Primary Clarifiers remove insoluble materials that either settle or float easily from raw wastewater
2. d A sudden increase in organic matter will increase the Food to Microorganism (F:M) ratio. Increasing the return rate will bring sludge from the clarifiers back to the aeration tanks and bring the F:M ratio back down. The respiration rate will increase, requiring more aeration
3. c A parallel circuit has all the units arranged 'side by side'. If one unit burns out, the remaining units will still be connected to the electrical source and they will continue to operate.
4. a A positive displacement pump moves fluids by physically displacing them by changing the volume of the cavity containing the fluid. A peristaltic usually uses a series of wheels to squeeze tubing causing the fluid to be moved.

protocols is an effort to bring clarity and consistency to the issue of phosphorus sampling. A copy of these documents was issued to commercial laboratories that have performed these analysis for regulatory purposes in the past. If you have any questions concerning these protocols, please contact your Department compliance inspector.

Sterling Pierce

Updated Phosphorus Protocols

In an effort to address some ongoing questions concerning proper sampling and analysis techniques for total phosphorus and orthophosphate, the Department has revised sampling and analysis protocols for each of the two methods. In these revised protocols we have included all of the approved procedures cited in [the updated 40 CFR](#) and described the process for conducting filter blanks and composite sampler blanks. The development of these

Attachment A

Protocol for Total Phosphorus Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits

Approved Analytical Methods: EPA 365.1 (Rev. 2.0), 365.3, 365.4; SM 4500-P B.5, 4500-P E, 4500-P F; ASTM D515-88(A), D515-88(B); USGS I-4600-85, I-4610-91; OMAAOAC 973.55, 973.56

Sample Collection: The Maine DEP is requesting that total phosphorus analysis be conducted on composite effluent samples, unless a facility's Permit specifically designates grab sampling for this parameter. Facilities can use individual collection bottles or a single jug made out of glass or polyethylene. Bottles and/or jugs should be cleaned prior to each use with dilute HCL. This cleaning should be followed by several rinses with distilled water. Commercially purchased, pre-cleaned sample containers are an acceptable alternative. The sampler hoses should be cleaned, as needed.

Sample Preservation: During compositing the sample must be at 0-6 degrees C (without freezing). If the sample is being sent to a commercial laboratory or analysis cannot be performed the day of collection then the sample must be preserved using H₂SO₄ to obtain a sample pH of <2 su and refrigerated at 0-6 degrees C (without freezing). The holding time for a preserved sample is 28 days.

Note: Ideally, Total P samples are preserved as described above. However, if a facility is using a commercial laboratory then that laboratory may choose to add acid to the sample once it arrives at the laboratory. The Maine DEP will accept results that use either of these preservation methods.

Laboratory QA/QC: Laboratories must follow the appropriate QA/QC procedures that are described in each of the approved methods.

Sampling QA/QC: If a composite sample is being collected using an automated sampler, then once per month run a blank on the composite sampler. Automatically, draw distilled water into the sample jug using the sample collection line. Let this water set in the jug for 24 hours and then analyze for total phosphorus. Preserve this sample as described above.

Attachment B

Protocol for Orthophosphate Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits

Approved Analytical Methods: EPA 300.0 (Rev. 2.1), 300.1 (Rev. 1.0), 365.1 (Rev. 2.0), 365.3; SM 4110 B, 4110 B-00, 4500-P E, 4500-P F; ASTM D515-88(A), D4327-97, 03; D6508 (Rev. 2); USGS I-4601-85; OMAAOAC 973.55, 973.56, 993.30

Sample Collection: The Maine DEP is requesting that orthophosphate analysis be conducted on composite effluent samples unless a facility's Permit specifically indicates grab sampling for this parameter. Facilities can use individual collection bottles or a single jug made out of glass or polyethylene. Bottles and/or jugs should be cleaned prior to each use with dilute HCL. This cleaning should be followed by several rinses with distilled water. The sampler hoses should be cleaned, as needed. Commercially purchased, pre-cleaned sample containers and or syringe type filtering apparatus are acceptable. If bench top filtering apparatus is being used this should be cleaned, as described above, before each use.

Sample Preservation: During compositing the sample must be at 0-6 degrees C (without freezing). The sample must be filtered immediately (within 15 minutes) after collection using a pre-washed 0.45-um membrane filter. Be sure to follow one of the pre-washing procedures described in the approved methods unless your commercial lab is providing you with pre-washed filters and filtering apparatus. If the sample is being sent to a commercial laboratory or analysis cannot be performed within 2 hours after collection then the sample must be kept at 0-6 degrees C (without freezing). There is a 48-hour holding time for this sample although analysis should be done sooner, if possible.

Laboratory QA/QC: Laboratories must follow the appropriate QA/QC procedures that are described in each of the approved methods. Additionally, laboratories providing filters or filter apparatus for sampling are required to submit blank data for each lot of filters/filtering apparatus to the facility.

Sampling QA/QC:

Filter Blank- if a facility is using a pre-cleaned filter and or filtering apparatus provided by a commercial laboratory then the commercial laboratory must run a filter/filtering apparatus blank on each lot. The results of that analysis must be provided to the facility.

If a facility is using their own filters and filtering apparatus then a filter blank must be included with every sample set that does not include a composite sampler (composite jug and sample line) blank.

Composite Sampler Blank- If a composite sample is being collected using an automatic composite sampler, then once per month run a blank on the composite sampler. A separate filter blank does not have to be done along with the composite sampler blank. When running a composite sampler blank, automatically, draw distilled water into the sample jug using the sample collection line. Let this water set in the jug for 24 hours and then filter and analyze for orthophosphate. Preserve these samples as described above.